

Stable isotopes of krypton available from ISOFLEX

Isotope	Z(p)	N(n)	Atomic Mass	Natural Abundance	Enrichment Level	Chemical Form
Kr-78	36	42	77.92039	0.35%	99.90%	Gas
Kr-80	36	44	79.916379	2.25%	99.90%	Gas
Kr-82	36	46	81.913485	11.60%	99.90%	Gas
Kr-83	36	47	82.914137	11.50%	99.90%	Gas
Kr-84	36	48	83.911508	57.00%	99.90%	Gas
Kr-86	36	50	85.910615	17.30%	99.90%	Gas



Krypton was discovered in 1898 by Sir William Ramsay and Morris W. Travers. Its name originates with the Greek word *kryptos*, meaning “hidden.”

Krypton is a colorless, odorless, tasteless gas. It liquefies at -153.22 °C and solidifies at 157.36 °C to a white crystalline substance with a face-centered cubic structure. It is slightly soluble in water. Krypton is an inert gas element. Its closed-shell, stable octet electron configuration allows zero reactivity with practically any substance. Only a few types of compounds, complexes and clathrates have been synthesized, mostly with fluorine, the most electronegative element.

The commercial applications of krypton are fewer than those of helium or argon. Its principal use is in fluorescent lights. It is mixed with argon as a filling gas to enhance brightness in fluorescent tubes. Other applications are in flash tubes for high-speed photography and incandescent bulbs. Radioactive Krypton-85 is used as a tracer to monitor surface reactions. The unit of length “meter” was once defined in terms of the orange-red spectral line of Krypton-86.

Properties of Krypton

Name	Krypton
Symbol	Kr
Atomic number	36
Atomic weight	83.30
Standard state	Gas at 298 °K
CAS Registry ID	7439-90-9

Properties of Krypton (continued)

Group in periodic table	18
Group name	Noble gas
Period in periodic table	4
Block in periodic table	p-block
Color	Colorless
Classification	Nonmetallic
Melting point	-157.36 °C
Boiling point	-153.22 °C
Thermal conductivity	0.00943 W/(m·K)
Electronegativity	3.00
Heat of vaporization	9.02 kJ·mol ⁻¹
Heat of fusion	1.64 kJ·mol ⁻¹
Density of gas	.0037 g/cm ³
Density of liquid	No data available
Density of solid	2.16 g/cm ³
Electron configuration	[Ar]3d ¹⁰ 4s ² 4p ⁶
First ionization potential	13.999 volts
Oxidation state	0 (an uncommon oxidation state +2 exists for its difluoride)
Critical temperature	-63.70 °C
Critical pressure	54.30 atm
Critical density	0.908 g/L